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SUPERFUND DIVISION

DEPARTMENT OF NATURAL RESOURCES

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March 15, 2016

Mr. Bradley Vann
Remedial Project Manager, Superfund Division
United States Environmental Protection Agency, Region 7
11201 Renner Boulevard
Lenexa, Kansas 66219

RE: Comments on Revised Comprehensive Phase 1 Report – Investigation of Radiological
Area 1 West Lake Landfill Operable Unit-1

Dear Mr. Vann:

The Missouri Department of Natural Resources has reviewed the above referenced document prepared by Engineering Management Support, Inc. dated February 19, 2016. We note the time constraints for a requested response to a report with data and appendices in excess of 10,000 pages, that also includes back references to documents that may have unresolved comments associated with them. Our review and comments are not comprehensive.

Thank you for giving us the opportunity to review and comment on this document. If you have any questions pertaining to these comments please contact me by phone at (573) 751-8628, or by written correspondence at P.O. Box 176, Jefferson City, MO 65102

Sincerely,

HAZARDOUS WASTE PROGRAM

A handwritten signature in black ink, appearing to read "Ryan Seabaugh".

Ryan Seabaugh, P.E.
Federal Facilities Section

RS:rl

Enclosure: Comprehensive Phase 1 Report Comments



MISSOURI DEPARTMENT OF NATURAL RESOURCES
Comments on the West Lake Landfill Operable Unit-1
Comprehensive Phase 1 Report – Investigation of Radiological Area-1
March 10, 2016

GENERAL COMMENTS:

1.) Speculative Statements

An administrative comment was made by EPA in a letter dated January 28, 2016 on the draft Phase 1 Comprehensive Report dated December 15, 2015 with regard eliminating speculative sentences and wording in the draft report. Additionally, the Department has commented in the past on documents with regard to the inclusion of speculative conclusions and statements. There continues to be speculative statements in this revised report, which distracts the reviewer from focusing on the data, and findings of the data.

More effort should be made to remove speculative statements.

2.) Conceptual Site Model

DNR generally agrees with using resources such as historical aerial photography, documented landfill boundaries, historical excavation projects and site activities, etc. to develop a conceptual model for identifying potential areas of contamination. We believe the understanding of the conceptual model should be expanded on in this document to provide more definitive evidence of waste and material placement timeframes especially as they relate to the quarrying operation. This conceptual model should focus on the fate and transport of RIM after placement and whether the current investigative borings sufficiently characterized these areas.

3.) Path Forward

The report does not discuss the path forward or next steps toward a proposed isolation barrier. We note the existing work plan for a Phase 2 investigation, and request clarification on whether a Phase 2 investigation is the next step.

SPECIFIC COMMENTS:

4.) Page 2, Section 1.1 – Background, Purpose and Scope, First paragraph

“Based on the presence of radionuclides in these two areas, EPA designated these two areas as Operable Unit-1 (OU-1) of the West Lake Landfill Superfund Site. The other four areas, or units, were designated as Operable Unit-2 (OU-2). All six units are the subject of Remedial Investigations and Feasibility Studies undertaken by the OU-1 Respondents ...”

Comment: This statement may be confusing, first by identifying areas as units, then by suggesting the OU-1 Respondents are the same as the OU-2 Respondents. Both statements should be corrected or clarified.

5.) Page 12, Section 2.5 – Geology and Hydrogeology

We note the information presented in this section, and additional borings may be needed to determine final isolation barrier design parameters. This would include the depths and amounts of water encountered along any proposed alignment.

6.) Page 13, Section 2.5 – Geology and Hydrogeology, First paragraph

“There is no indication that any Holocene-age faults are present at the site”

What observations and methodology were made to draw this conclusion?

7.) Page 13, Section 2.5, First Paragraph – Geology and Hydrogeology

“Extensive geologic mapping of the quarry walls in the area of the inactive Bridgeton Sanitary Landfill performed as part of the OU-2 Remedial Investigation (RI) did not identify the presence of any faults in the bedrock units in that area”

Comments: If this paragraph is relevant to the installation of an isolation barrier, and is necessary for the phase 1 investigation, more detail should be given to:

- a) What “area” specifically is being referenced, and how does it relate to the potential barrier alignment?
- b) Does OU-2 Remedial Investigation include investigation of karst features or the potential for karst?
- c) How does the OU-2 Remedial Investigation impact this investigation, and how will that investigation impact the design and construction of a proposed isolation barrier?

8.) Page 14, Section 2.6 – Subsurface Reaction, Second and third paragraph

These paragraphs and the referenced Figure 4 contain dated information that should be updated or removed.

9.) Page 15, Section 2.6 – Subsurface Reaction, Fourth and fifth paragraph

“Both of these reports concluded that the primary potential impact if an SSE were to occur in Area 1 might be a temporary, localized increase in radon exhalation...”

The relevance of this conclusion statement relative to the investigation performed to develop this report, in addition to the purpose of citing the referenced reports are questionable. Additionally, a qualitative report on the impacts of the current SSE event or a potential SSE event does not provide enough information to make defensible conclusive statements regarding the health risks involved in such events. The fourth and fifth paragraphs should be revised to exclude speculative statements, or deleted altogether.

10.) Page 17, Section 3 – Summary of Investigation Activities, Second to last paragraph

Change “obtained” to “obtain.”

11.) Page 18, Section 3.1 – Vegetation Clearing

“No areas containing surface RIM were encountered during the clearing operation”

This conclusion is not supported since gamma surveys alone cannot detect Thorium-230, a RIM component that is not a significant gamma emitting radionuclide.

12.) Page 20, Section 3.4 – Inert Fill Material

“Since closure of Area 1 in 1974, placement of inert fill material... was the only time that fill was placed in this portion of Area 1.”

This statement was originally made in the Bridgeton Landfill Thermal Isolation Barrier Investigation Phase 1 Report dated December, 2014. DNR commented on this statement in a letter dated April 10, 2015 stating “DNR questions the validity of this statement. The fact that municipal waste was placed above locations of identified RIM refutes this statement. Also, please provide documentation of the 1974 Area 1 closure mentioned in this statement.”

The respondents, in a letter dated August 19, 2015 stated *“We agree that this statement needs to be revised to reflect the fact that, pursuant to a permit issued by MDNR, solid waste material associated with the above-grade portion of the North Quarry landfill unit was placed over the southern portion of Area 1. The reference to “closure” of Area 1 was not intended to imply that there was a formal closure submitted to or approved by MDNR. Landfilling in Area 1 occurred prior to the establishment of MDNR and promulgation of the solid waste regulations. The statement was simply intended to refer to the cessation of landfilling activities in Area 1 in 1974.”*

Revisions are still needed to reflect actual conditions. The report also needs to refer to a cessation of landfilling activities rather than "closure"

13.) Page 23, Section 3.6 – Phase 1A Gamma Cone Penetration Test Investigation

The reference at the end of the paragraph appears to be an incorrect reference.

14.) Page 23, Section 3.6.1 – GCPT Calibration Checks

A more accurate term for the activity described in this section is "correlation", not "calibration"

15.) Page 25, Section 3.6.3 – Phase 1A GCPT Results

Were pore pressure dissipation tests correlated with other data, such as soil borings?

16.) Page 27, Section 3.7.1. – GCPT Calibration

See comment #14

17.) Page 31, Section 3.8.1.1 – Sonic Drilling Procedure, First paragraph

"Therefore, core samples were hydraulically extracted from the sample barrel..."

This statement was originally made in the Bridgeton Landfill Thermal Isolation Barrier Investigation Phase 1 Report dated December, 2014. DNR commented on this statement in a letter dated April 10, 2015 stating "Please elaborate on this process and describe whether any investigative derived waste was generated in this process."

The respondents, in a letter dated August 19, 2015 stated *"The cited text is not completely accurate and will be corrected in the final report. For the most part, the core materials were slid out of the core barrel into the plastic sleeves. In some instances the core material was pushed out of the barrel. Once the core material had been removed from the barrel, the barrel was vibrated to insure that all of the material had been removed. No investigative-derived waste was generated by this process. Regardless, all investigative-derived waste (e.g., PPE, decontamination water, etc.) was collected and containerized."*

The statement should reflect actual procedures as mentioned in the previous response to comments.

18.) Page 32, Section 3.8.1.2 – Phase 1C Sonic Borehole Locations

“Ten Sonic boreholes were drilled in the eastern portions of Area 1 and the North Quarry area of the Bridgeton Landfill to verify the absence of RIM along the potential IB alignment and in the area anticipated to be used for relocation of any non-RIM MSW materials that may be excavated in conjunction with construction of a potential thermal IB.”

DNR suggests that plans for both on-site and off-site management of excavated and construction materials/wastes should be developed and provided for consideration of preferred management method. Final on-site disposal will require a new Solid Waste Disposal Area Permit in order to comply with state Appropriate and Relevant Applicable Requirements (ARARs).

19.) Page 33, Section 3.8.3 – Borehole Downhole Gamma Logging

“Once the borehole reached its total depth, a temporary 2-inch diameter PVC sleeve was inserted into the hole...”

This statement was originally made in the Bridgeton Landfill Thermal Isolation Barrier Investigation Phase 1 Report dated December, 2014. DNR commented on this statement in a letter dated April 10, 2015 stating “Use of the term “sleeve” indicates the PVC pipe was open on both ends. Section 4.8.1 of the Phase 1B, 1C and 2 Work Plan – Revision 1 calls for a “2 ½ inch minimum solid PVC pipe with a bottom cap” to be used. Please clarify.”

The respondents, in a letter dated August 19, 2015 stated *“A cap was placed on the bottom of the pipe as specified by the work plan. For the comprehensive report, we will use a term other than “sleeve” to describe the PVC pipe that was placed in the hole.”*

A term other than “sleeve” needs to be used to describe the PVC pipe that was placed in the hole.

20.) Page 39, Section 3.9.1.1. – GCPT Calibration

See comment #14

21.) Page 49, Section 3.12 – Historic Topography Research, First sentence

“The juxtaposition of the above-grade portion of the North Quarry landfill mass... raised some preliminary concerns regarding the occurrences and extent of RIM and lead to unsubstantiated claims by some members of the public that the RIM had migrated from Area 1 into the North Quarry.”

Whether claims made by individuals or parties are substantiated is not relevant to the investigation. Being able to create and effectively communicate a complete conceptual site model that is based on, and supported by, data is relevant. See comment #2.

22.) Figure 2 – Facility Layout

The figure is inconsistent with boundaries presented in the OU-2 Record of Decision.

Please update the figure.

23.) Figure 4 – SSE Migration in South Quarry Based on Observed Settlement Areas

This figure is dated, and needs to be updated or deleted.

24.) Figure 15 – Extent of Radiologically-Impacted Material in Area 1

This figure is missing circles around borings with elevated gamma and/or radium or thorium above unrestricted use levels. (Examples: Elevated Thorium in Sonic Boring 1-2 and Boring 1D-16S) Further, the threshold value for “elevated gamma” needs to be defined in the figure. Points lying outside the highlighted area indicating “Extent of RIM” needs to include discussion in the report explaining why the elevated values are not included in the highlighted area. Points include 1D-6 (gamma), 1d-4S(gamma), and 1D-20S (gamma).

25.) Figure 15 – Extent of Radiologically-Impacted Material in Area 1

Thorium was detected above the unrestricted use level at WL-103, yet it is not included in the highlighted area showing the extent of RIM.

Why was this location excluded from the highlighted area showing the extent of RIM?